If one considers the raw fuel, then its products of gasification, and lastly the products of complete combustion, one finds that the materials to be treated in this series always become of simpler kinds, and finally are narrowed down to tbe three simple substances, C0a, HaO, and N.

1'Yoni tlu1 products of complete combustion of the fuel, one can already draw some conclusions of importance.

The, products of combustion of pure 0 with pure dry air are CO., and N, and so 0110 obtains from 1 kilogramme by direct combustion of the 0 according to formula (5)

r<sr> cubic metre COa+7'00 cubic metres N*

whilst the production of air-gas from (10)

I'M cubic metre (50+55*50 cubic metres II, is furnished.

If the gas be completely burnt with air, one would obtain, since according to (18) l'H(> cubic metre 00 requires I-Hf>xn-r» •.<)•!»:* (), a yield of 1*8() cubic metre COa- The O'iW cubic metro () brought, however, with it 8*5 cubic metres X ; the products of combustion are therefore 1*8(> cubic metre CO., -| T'OO cubic metros N that is to say, they are the same as that, due' to direct, combustion of pure 0. If the pure 0 is gasified by the means of water-vapour, then the gas shows a content of hydrogen. IVor example : •-

(fl i, ('(>' H N

0-0 I cubic, metre !

1'S'J ,, ! 1%S<> c.ubio metro

(p. 30).

[•SB cubic metre tt'72 cubic metres

Should these ganen bo completely burnt by air, the air requirement and composition of the products of combustion

are easily ascertained from observation of the formulae (18), (1*2), and (1),